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$$H_c = 2K_c/M_s + NiM_s,$$

because the circular shape does not produce a shape anisotropy. Instead, there is now an interaction anisotropy term, $N_i M_s$, in which N_i is given by:

$$N_i = (\pi/4)\, t\, (a^2/s^3) = 0.785\, t\, (a^2/s^3),$$

where s is the center-to-center distance between the circles. This term is less than 17% of the shape anisotropy contribution, depending on the value of s. The chain of ellipses, seen in Fig. 1b, can reduce this value still further when the major elliptical axis is perpendicular to the line joining the centers. It is noted, therefore, that the coercivity of the two circles is dominated by the crystalline anisotropy term, $2K_c/M_s$, whereas the coercivity of the original ellipse was dominated by the shape anisotropy, $(N_a - N_c)M_s$. Thus, the method of the present invention reduces the write-current power consumption and allows scaling to smaller dimensions. It should be noted from the formulas presented above, that an optimal choice of center-to-center distance for fabrication purposes depends on other features of the circular segments, such as radius and thickness.

The greatest advantage of the present invention is the ability it provides to control the switching mode during magnetization reversals. In prior art designs, any imperfection of the edge or shape of the ellipse or lozenge cells, or any defects within the cell, will serve as a nucleation site for magnetization switching and significantly reduce the switching threshold. Since these defects are uncontrollable, the variations in switching threshold will be randomly distributed among the cells in the array. In the present invention, the edges at the inside regions of the segments forming the cell will